Spring 2020

IT 120-002: Introduction to Network Technology

Lori Watrous-deVersterre

IT120 Introduction to Networking Technology

Course Description: IT 120 is an introduction to the basics of networking in a modern operating system environment. Emphasis is placed on the application and management of networking technology. Topics to be covered include: the layered model, network hardware and technologies, network protocols, wired and wireless networks, and TCP/IP. This is an introductory networking course and is oriented toward freshman and sophomores. **There are no prerequisites for this course.**

Instructor: Lori Watrous-deVersterre

Office: GITC 3803

Phone: 973.596.5688

Email: llw2@njit.edu **Please put IT120 and course section in the subject of your email.** This will ensure I respond more quickly to your email.

Office Hours: See Canvas course information for standard open office hours, or
By appointment

Text: *MANAGING AND TROUBLESHOOTING NETWORKS, 5th edition,* Mike Meyers, McGraw Hill, 2018, ISBN: 9781260128512

Note: *The 1st 2nd & 3rd editions of this textbook are significantly different. They should not be used for this class. The 4th edition has a more up to date wireless chapter and a revamped SOHO example but does not include latest technologies and is missing some protocols. The 5th edition has updates for mobile and wireless technologies as well as virtualization. The 5th edition is the version I will use in class.*

Canvas: Additional material and resources will be found on the class website on Canvas, (https://canvas.njit.edu/). It will be modified and updated as the course progresses and will contain the most recent information.

Schedule: **The following is a tentative schedule and subject to change. Refer to class web page for most recent information.**

Day	Topics	Reading Due
Week 1 **1/23 & 1/27**	**Course Information** **Layered Model** • Functions of the layers • Protocols • Binary and Hexadecimal	Read Chapter 1
Week 2 **1/30 & 2/3**	**Physical Layer** • Topology • Cabling • Repeaters and Hubs • Installing a physical network	Read Chapters 2, 5
Week 3 **2/6 & 2/10**	**Data Link Layer** • Ethernet Basics • MAC addresses • CSMA/CD • Modern Ethernet • Bridges	Read Chapter 3, 4
Week 4 **2/13 & 2/17**	**Data Link Layer** • Wireless networks • 802.11 WiFi • CSMA/CA • Wireless access points	Read Chapter 14
Week 5 **2/20 & 2/24**	**Data Link Layer** • Wide Access Networks • Modems, DSL, Cable Modems • Satellite, Wireless, Fiber • Using remote access	Read Chapter 13,16

Week 6 **2/27 & 3/2**	**Network Layer** • IP addresses and dotted decimal • ARP • Class-ful IP Addresses and masks	Read Chapter 6 (pg. 131-150)
Week 7 **3/5 & 3/9**	**Network Layer** • Static, Dynamic, & Private IP addresses • DHCP	Read Chapter 6 (pg. 158-168)
Week 8.1 **3/12**	**Midterm March 12th**	Study! Closed book, No calculators
Week 8.2 **3/23**	**Network Layer** • Subnetting • Class-less IP Addresses	Read Chapter 6 (pg. 150-157)
Week 9 **3/26 & 3/30**	**Network Layer** • Routers • Forwarding • Routing	Read Chapter 7
Week 10 **4/2 & 4/6**	**Network Layer** • IPv6 IP Addresses • Using IPv6 • Moving to IPv6	Read Chapter 12
Week 11 **4/9 & 4/13**	**Transport Layer** • Ports • TCP and UDP **Application Layer** • Sockets • HTTP • Domain Name System (DNS)	Read Chapters 8, 9
Week 12 **4/16 & 4/20**	**Networks** • Virtual Private Network • Virtual LANs • Multilayer Switches **Security Standards** • Security components & standards	Read Chapters 11, 10
Week 13 **4/23 & 4/27**	**Security** • Managing Risk • Protecting Your Network	Read Chapter 18, 19
Week 14 **4/30 & 5/4**	**Network Monitoring.**	Read Chapter 20
May 8-14	**NO MAKE UP EXAMS WILL BE GIVEN** **Final Exam – time and place to be announced**	Study!

Note: Schedule may change. Refer to class web page for most recent information.

Credit: 3

Grades: Final grades will be based on:

Midterm	25%	250 points
Final	30%	300 points
Class participation	5%	50 points
Homework (5 assignments)	25%	250 points
Current Events	15%	150 points

There is a total of 1000 possible points for the term. Grades are based solely on the points you earn.

A	900 -1000 points
B+	850 – 899 points
B	800 – 849 points
C+	750 – 799 points
C	700 – 749 points
D	600 – 699 points
F	0 - 599 points

I may curve up when assigning grades, but I will under no circumstances curve down. For example, you may earn an A if you have 898 points, but you will not earn lower than a B+ if you have 850 points. I will not assign incompletes unless there are extraordinary circumstances.

POLICIES:

Assignments (Homework and Project)

Homework for this class consists of 5 homework assignments. Their purpose is to help you keep up with the material and assess your readiness for the midterm and final.

Homework is due before midnight (**11:55pm**) on the due date specified on the schedule. It will be submitted via Canvas electronically. Late homework will not be accepted unless there is a reason beyond your control. In most cases I try to grade homework online and return the results back to you electronically. I will also post the solutions online.

A requirement for this class is a **current event** on changes in networking technology. This is a broad topic and can cover the protocols, hardware, or applications that are specific to networking technology but it must be current information (within the **last month**). The assignment is designed to have you research and locate a recently published, professionally written, article that is relevant to networking technology today. The presenter must email to the instructor **48 hours** prior to the start of class the article, a summary of the article and any material they will use to describe the technology and query the class' response. The purpose of this assignment is to give you practice in presenting technical information in a clear and simply explained manner that can be disseminated to both technical and non-technical audiences. This is a crucial skill for an information technology professional to master in order to be effective in the business world. Further details on this project will be provided in class and on Canvas.

Participation

I expect you to actively participate in class by asking questions and to come prepared to answer questions in class. It is important to have read the Chapter in advance of class. You will get more out of the class if you've spent some time thinking about the material in advance.

I reserve the right to issue surprise quizzes at my discretion which will be included as part of the participation grade. This ensures you have done the readings and forces you to keep up with the material.

Makeup Tests and Assignments

Requests for makeup tests and assignment changes must be made in advance with the instructor and will only be approved if the reason is beyond your control.

Note: Calculators are not necessary and are **not permitted** for exams in this course.

Academic Integrity Policy

The NJIT academic honor code is located at: http://integrity.njit.edu/index.html. This honor code applies in its entirety to this class. Violations will not be tolerated. In addition, students should familiarize themselves with NJIT's "Best Practices related to Academic Integrity" which is developed and published on the Provost's website (on the policies page).

TURNITIN Policy

NJIT uses Turnitin.com, a service that helps prevent plagiarism on student papers. I will be using the Turnitin.com service at my discretion to determine the originality of student work. If I submit your work to Turnitin.com, it will be stored by Turnitin.com in their database as long as their service remains in existence. If you object to this storage, **you must let me know no later than two weeks after the start of this semester.** Note, I will still utilize other services and techniques to check for plagiarism.